

**Report on 2002 *Lampsilis higginsii* Brood Stock Collection and Stockpiling in
the Wisconsin River near Prairie du Sac, Wisconsin.**

Wisconsin Department of Natural Resources.

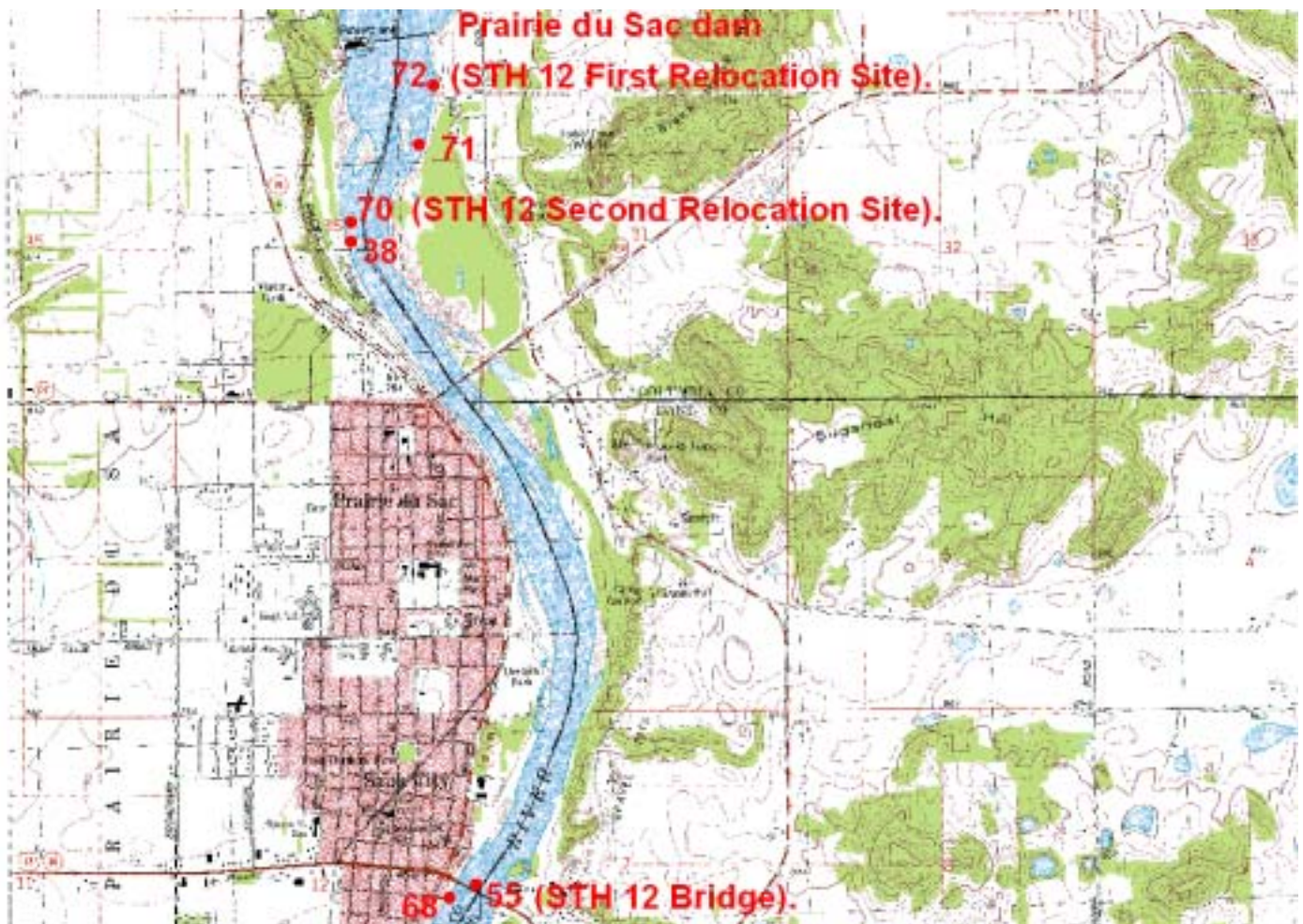
15 October 2003.

This is a report on the 2002 brood stock collection and stockpiling of *Lampsilis higginsii* in the Wisconsin River, near Prairie du Sac, Wisconsin during May, July and August of 2002. This effort was part of mussel propagation related to the continued operation and maintenance of the Mississippi River System Navigation project by the U. S. Army Corps of Engineers in cooperation with the associated, multi-agency Mussel Coordination Team.

Persons involved in these 2002 activities were staff from the Minnesota Department of Natural Resources, U. S. Army Corps of Engineers, U. S. Fish and Wildlife Service and the Wisconsin Department of Natural Resources.

During 2002, we collected potential *L. higginsii* brood stock during May 7th and 13th for use at the Genoa National Fish Hatchery for artificial propagation. During these same dates as well as July 31st and August 1st, we stockpiled brood stock and other mussels for future use in artificial propagation.

Figure 1. 2002 Sampling and Collection Station Locations, Wisconsin River near Prairie du Sac, Wisconsin.



In May, we collected two female *L. higginsii*, originally collected from Station 55 during an unrelated mussel relocation (see Havlik, 2003) at the State Highway 12 bridge (see Figure 1 and Table 1). One of these mussels, tag number "02", was taken to the Genoa National Fish Hatchery in a cooler containing aerated river water to be used for artificial propagation. This mussel was found gravid and contained mature, usable glochidia. It was used to infect 300 smallmouth bass which had the potential to drop an estimated 16, 500 juveniles. These 300 infected smallmouth bass were released at

Station 68 on May 29, 2002. This mussel (tag number “02”) was returned to Station 72, which was the first bridge relocation site, on May 13, 2002. The other, a non-gravid female (tag number “08”) was replaced to Station 72 immediately after collection. Both specimens had a tissue sample taken for future genetic analysis.

Table 1. Station Locations on the Wisconsin River near Prairie du Sac Sampled During 2002.

| STATION NUMBER | WISCONSIN RIVER MILE | LEGAL DESCRIPTION | LATITUDE & LONGITUDE | COMMENTS |
|----------------|----------------------|---|------------------------------|---|
| 55 | 89.35 | Twp. 9N, Rng. 6E, Sec. 12, NE of NE of SE. Sauk & Dane counties, WI.. | 43°16'12.8"N 89°43'11.5"W | State Hwy. 12 bridge. |
| 38 | 91.58 | Twp. 10N, Rng. 6E, Sec. 36, SW of SW of NE. Sauk County, WI. | 43°18'02.0"N 89°43'40.0"W | Collection station off of VFW Park. |
| 70 | 91.69 | Twp. 10N, Rng. 6E, Sec. 36, SW of SW of NE. Sauk County, WI. | 43°18'05.2"N 89°43'40.2"W | Hwy 12 Second Relocation Station. |
| 71 | 91.99 | Twp. 10N, Rng. 6E, Sec. 36, SW of NE of NE. Columbia County, WI. | 43°18'18.3"N 89°43'24.2"W | Collection station on E. side of Island. |
| 72 | 92.15 | Twp. 10N, Rng. 6E, Sec. 25, SW of SW of SE. Columbia County, WI. | 43°18'28.4"N 89°43'20.8"W | Hwy 12 First Relocation Station. |
| 68 | 89.16 | Twp. 9N, Rng. 6E, Sec. 12, NE of NE of SE. Sauk County, WI. | 43°16'10.6"N 89°43'17.9"W | Free-ranging smallmouth bass release station. |

Because of unsatisfactory habitat conditions at Station 72, the first bridge relocation site, the contractor for the bridge relocation, Malacological Consultants, moved about 13 of the 26 mussels, including one of the two *L. higginsii*, to the second bridge relocation site at Station 70. Malacological Consultants was unable to locate *L. higginsii* number “02” as well as about half of the non-federally listed relocated mussels.

On July 31st and August 1st 2002, a substantial effort was made to locate and stockpile *L. higginsii* for future use as brood stock. We also collected tissue samples from these as well as *Lampsilis siliquoidea* for genetic analysis. During this summer stockpiling effort, we collected a total of 5 additional *L. higginsii* (Table 2) as well as 3 *L. siliquoidea*. These 8 mussels were stockpiled at Station 70 soon after initial collection.

We found a total of 7 *L. higginsii* in the Wisconsin River during 2002 (Table 2). Five of these were females and 2 were males. Of these 5 females, only one was gravid. This represents a very low brooding rate compared to data from the St. Croix and Mississippi rivers. This low brooding rate may be explained by the temporal period some of these mussels were collected. Three of the five females were collected during late July and early August. During this time of year, marsupial contents are not as obvious during gross examination because they are near the beginning of their brooding cycle. Therefore, it's possible that these three *L. higginsii* were not brooding or we did not detect brooding in our examinations although one (tag number 934) appeared to be a sterile female based on gross anatomy of the marsupia.

Table 2. Specimen Specific Mussel Data Collected during 2002 from the Wisconsin River near Prairie du Sac.

| TAXON | TAG NUMBER | LIVING OR DEAD | DATE | STATION NUMBER | LENGTH | HEIGHT | AGE | SEX | GRAVID | COMMENT |
|------------------------|---------------|----------------------|-----------|-------------------|--------|--------|-----|-----|--------|---|
| <i>E. lineolata</i> | | L | 01-Aug-02 | 71 | . | . | . | F | | 25°C |
| <i>L. higginsii</i> | 02 | L | 07-May-02 | 55 | . | . | . | F | Y | 13.5°C. Used for propagation at Genoa Nat. Fish Hatchery. 300 SMB w/ progeny released to Station 68 May 29, 2002. 16, 500 Juv's. (Est). |
| <i>L. higginsii</i> | 02 | L | 13-May-02 | 72 | . | . | . | | | TISSUE SAMPLE TAKEN.11.1°C |
| <i>L. higginsii</i> | 08 | L | 13-May-02 | 72 | 93 | 75 | 16 | F | N | TISSUE SAMPLE TAKEN.11.1°C |
| <i>L. higginsii</i> | 08 | L | 31-Jul-02 | 70 | . | . | . | | | TRANSLOCATED HERE BY HAVLIK, APRIL 2002. ORIGINALLY FROM STH 12 RELOCATION.25°C |
| <i>L. higginsii</i> | 151 | L | 31-Jul-02 | 70 | 77 | 52 | 11 | M | | TISSUE SAMPLE TAKEN. ORIGINALLY FROM STATION 71, ~071402, BY BER.25°C |
| <i>L. higginsii</i> | 931 | L | 31-Jul-02 | 38 | 87 | 62 | 14 | M | | TISSUE SAMPLE TAKEN. TRANSLOCATED TO STAT. 70.25°C |
| <i>L. higginsii</i> | 932 | L | 31-Jul-02 | 71 | 66 | 54 | 7 | F | N | TISSUE SAMPLE TAKEN. TRANSLOCATED TO STATION 70.25°C |
| <i>L. higginsii</i> | 933 | L | 31-Jul-02 | 71 | 75 | 57 | 13 | F | N | TISSUE SAMPLE TAKEN. TRANSLOCATED TO STATION 70.25°C |
| <i>L. higginsii</i> | 934 | L | 01-Aug-02 | 71 | 94 | 69 | 18 | F | N | TISSUE SAMPLE TAKEN. TRANSLOCATED TO STATION 70. STERILE FEMALE-NO BLACK MARGINS ON DEMIBRANCHS.25°C |
| <i>L. siliquioidea</i> | LSW1 | L | 31-Jul-02 | 71 | 76 | 54 | 8 | F | N | TISSUE SAMPLE TAKEN. TRANSLOCATED TO STATION 70.25°C |
| <i>L. siliquioidea</i> | LSW2 | L | 31-Jul-02 | 38 | 90 | 48 | 11 | F | | TISSUE SAMPLE TAKEN. TRANSLOCATED TO STAT. 70. UNCERTAIN OF SEX.25°C |
| <i>L. siliquioidea</i> | LSW3 | L | 31-Jul-02 | 38 | 99 | 49 | 15 | F | | TISSUE SAMPLE TAKEN. TRANSLOCATED TO STAT. 70. UNCERTAIN OF SEX.25°C |
| <i>P. cyphus</i> | 15 | L | 13-May-02 | 72 | 74 | 53 | 14 | | | 11.1 °C |

References Used

Havlik, Marian E. 2003. U.S. Hwy 12 Wisconsin River mussel survey and trasnlocation, Sauk and Dane counties, Wisconsin, May 2002. Final Report. WDOT Proj. ID 5300-03-02/75. Malacol consult., La Crosse, WI. 24 pp.

APPENDIX 1.
COPIES OF FIELD DATA SHEETS.

State of Wisconsin
Department of Natural Resources

Wisconsin Mussel Survey Form
Form 1700-29 8-90

WBIC: 2007400 Sheet 1 of 1 Source Code: D2 WI
Date (mmddyy): 08/30/02 Waterbody: St. Croix R. WVE Site/Bed Name: p. du sac
7.5' Quad: 10 N, R 6E, S 2S of SW of SE of SE Co.: 11 Fago R. Mi.: 92.15
Lat: 43° 18' 27.1" N Long: 92° 18' 27.1" W
USACOE R. Mi.: 5.25
Area Sa. 'ed(m²): 30 Tran or Stat # 12 Sta. Dist. From Bank(m): 230 Bank (L or R): L H2O C: 5.25
Current 30 Depth(m) 30 SUBSTRATE: 30 %bedrock 30 %hardpan 30 %boulder 40 %rubble
30 %gravel 30 %coarse sand 30 %fine sand 30 %muck & silt 30 %clay 30 %detritus
Method (circle one): 1=random pt. 2=transect 3=shore coll. 4=inventory 5=sare & assoc. 6=targeted taxon
7=harvest sample 8=community rel. abun. 9=incremental coll. (by 1). Other:
Crew (circle collector): WDNR (Heath Ranger) Rogers, wege, vel hq.

Directions: ETC See map at the tip of St. Croix R. 9' off VFW
Park (VFW) & at Havike Net Site

Comments Dive time: First
MCH Hwy 12 Bridge relocation site 43° 18' 28.4" 89° 43' 20.8" (MAD 27)
out ~ 30 m from shore Out from Golf Green: ~ 150 m down stream of old
FPA. By 29 May 2002, ~13 of the 26 mussels here were relocated to ~ 43° 18' 27.1"
N, 89° 43' 37.9" 68 m out from fluorescent green painted fence post on wedge of VFW Park rip-rap.

Is marked by 4 verticle, Embedded rebar, 4 fenceposts, 81 6 ft long PVC pipe. The
large L. higgasi (#08) was re-relocated here! Lh. #02 of a Pelyphus, 74mm x 53mm,
14 yrs old, Taxon tag # 15 was not.

| | | | | | | | | | | | | | | | | | | | |
|--|----------------------------------|---|--|--------|-----|-----|--------|-----|------|---|--------|-----|-----|--------|-----|------|--|--|--|
| is marked by 4 vertebrae large L. higgasi (#08) 14 yrs old, Taxon tag # 15 | Embedder Total # for taxon | rebar, 4 fenceposts was re-located here! L. h. was not. | 6 to 10m PVC pipe. The # 02 of a Pelyphus, 74mm x 5 | | | | | | | | | | | | | | | | |
| | Living | Dead | Length | Height | Age | Sex | Gravid | Tag | Pres | Length | Height | Age | Sex | Gravid | Tag | Pres | | | |
| L. higgasi from Hwy 12 bridge moved to here 5-10-02. | 1 | 0 | 93 | 75 | 16 | F | N | 08 | | Tissue sample taken | | | | | | | | | |
| L. higgasi | 1 | 0 | | | | | | 02 | | Veloxinae to L. higgasi to L. higgasi | | | | | | | | | |
| Pelyphus | 1 | 0 | 74 | 53 | 14 | | | 15 | | Tissue sample taken relocated to 7-26-02 8-mil pipe Brown | | | | | | | | | |

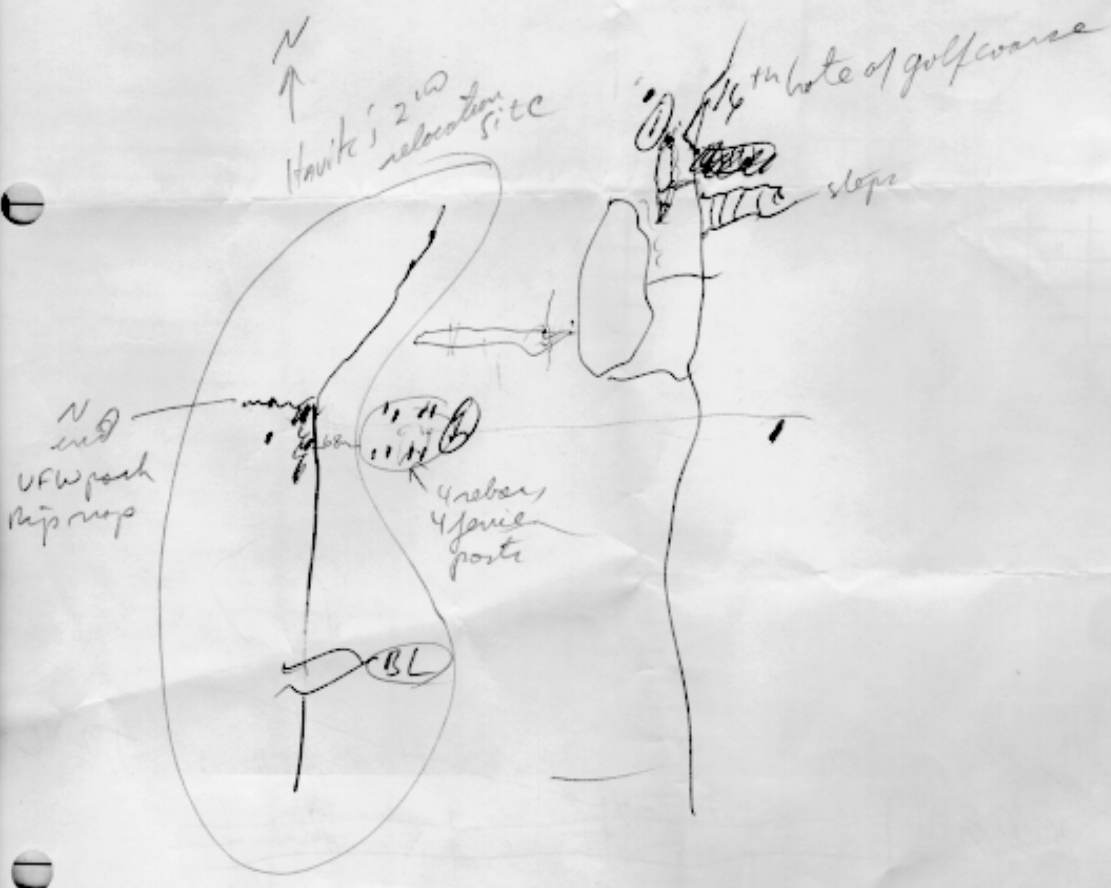
Directions: Start SS at Hwy 12 Bridge, pick up bag 5m from EOB, 200ft up str.

Comments: pupa? Imp. L-6.9 from Red Bay ~ 20 ft upstream of SH 12 bridge, ROB. From Hatch's bridge works, 09:00 am to person caught. Fish HAT. 15°C at person location. Imp. W. 11:44 am. Transported in V.F.R. water + cooler water at delivery. 14.5°C. Returned to the yellow-green relocation site 5-13-02 where it was not found again. It was not re-relocated. 13 VFW Park second relocation site along up Total # a p. cyphus.

[illegible]

#15 *Polyphus*
 74 53, 14 110. live ~~still~~ still at upstate (1st)
 relocation site - could not find to relocate
 to VFW relocation site. along w/ L h. #02. L h #
 08 ~~was~~ was moved by hand to VFW site

NOTES from MEH ~ 6/02, regarding stockpiled
 mussels from STH 12 mussel relocation, WEP, Pr. du
 Sac



QA

State of Wisconsin
Department of Natural Resources

Wisconsin Mussel Survey Form
Form 1700-29 8-90

WBIC: 1179900 Sheet 1 of 1 Source Code: 02 WI
Date (mmddyy): 8/1/02 Waterbody: Wis. River Site/Bed Name: Prairie du Sac
7.5' Quad.: _____ Quadcode: _____ Lat: _____ "N _____ Long: _____ "W
T 10 N, R 6E, S 30 of SW of NE of NE Co.: 11 Fago R. Mi.: 91 98 91.99
T _____ N, R _____, S _____ of _____ of _____ of _____ Co.: _____ USACOE R. Mi.: _____
Area Sa'ed(m²) _____ Tran or Stat.# 2 Sta. Dist. From Bank(m) 28 Bank (L or R): L H2O C: 25
Current 2 Depth(m) 0.8 SUBSTRATE: _____ %bedrock _____ %hardpan _____ %boulder _____ %rubble
_____ %gravel _____ %coarse sand _____ %fine sand _____ %muck & silt _____ %clay _____ %detritus
Method (circle one): 1=random pt. 2=transect 3=shore coll. 4=inventory 5=rare & assoc. 6=targeted taxon
7=harvest sample 8=community rel. abund. 9=incremental coll. (by _____) Other: _____
Crew (circle collector): WDMR USAF VSW 10
Directions: All along channel along E side of Willow Island, especially
downstream
Comments: Also found 1 ♀ Butter Fly in same area #2. Placed in into
Hatchling STHR2 second Reloc. site (between St. 36 & 38) (Station #10)

| Taxon | Total # for taxon | | Length | Height | Age | Sex | Gravid | Tag | Pres | Length | Height | Age | Sex | Gravid | Tag | Pres |
|----------------------|----------------------|------|--------|--------|-----|-----|--------|-----|------|--|--------|-----|-----|--------|-----|------|
| | Living | Dead | | | | | | | | | | | | | | |
| <i>Lampsilis nig</i> | 1 | | 94 | 69 | 18 | F | N | 934 | | No black margins on gills. Sterile female? | | | | | | |
| <i>F</i> | | | | | | | | | | Tissue SA taken | | | | | | |
| <i>E. lineolata</i> | 1 | 0 | | | | F | | | | | | | | | | |
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Comments: *Seachery for Whiggins*. Tissue sample taken for Bonnie Bower. (Nightly move) to Havlin's ST#12 second Relo-site (Between St. 36 & 38) (St. #70)

[illegible]

Wisconsin Mussel Survey Form
Form 1700-29 8--90

Crew (circle collector): Heath Warrick (2)
 Directions: Williamson pipe blocks, fence post, 7 shag -
live sprouts, back of post. Upper 138
 Comments: Havik 2nd Hwy Reloc. site. One found by
BPR last week at ~ St. 772. Mattina 75m downstr,
21 Havik's STD 12 below Reloc Site. 7-31-02 GPS: 43 18 5.4, 89 43 40.1
43 18 5.1, 89 43 40.5. 8-1-02: 43 18 5.0, 89 43 39.8, 43 18 51.3, 89 43 39.7

[illegible]

WBIC: 1179900 Sheet 1 of 1 Source Code: 02 WI
Date (mmddyy): 7/31/03 Waterbody: WI River Site/Bed Name: Private d. Sac
7.5' Quad: _____ Quadcode: _____ Lat: _____ "N _____ Long: _____ "W
T 10 N, R 06, S 36 of 9 of 9 of NE Co.: 57 Fago R. Mi.: 91 38
T _____ N, R _____, S _____ of _____ of _____ of _____ Co.: _____ USACOE R. Mi.: _____
Area Sa.'ed(m²) _____ Tran or Stat. # 38 Sta. Dist. From Bank(m) _____ Bank (L or R): R H2O C: 25.0
Current / Depth(m) 1.5 SUBSTRATE: _____ %bedrock _____ %hardpan _____ %boulder _____ %rubble
_____ %gravel _____ %coarse sand _____ %fine sand _____ %muck & silt _____ %clay _____ %detritus
Method (circle one): 1=random pt. 2=transect 3=shore coll. 4=inventory 5=rare & assoc. 6=targeted taxon
7=harvest sample 8=community rel. abund. 9=incremental coll. (by _____). Other: L. higginsi North
Crew (circle collector): USACOE, FWS WDMA CM DMR
Directions: upstream of rip rap along VFW (Village) Park, RD

Comments: Tissue sample taken of L. higginsi for Bonnie Cowan
Placed in Hauler's 8th 12 2nd reloc. site. (relocated 36 738)
(station #70)

| Taxon | Total # for taxon | | Length | Height | Age | Sex | Gravid | Tag | Pres | Length | Height | Age | Sex | Gravid | Tag | Pres |
|-----------------------|----------------------|------|--------|--------|-----|-----|--------|------|------|---------------------|--------|-----|-----|--------|-----|------|
| | Living | Dead | | | | | | | | | | | | | | |
| <i>Lampsilis Hig.</i> | | | 87 | 62 | 14 | M | - | 931 | ✓ | Tissue | 54 | 62 | | | | |
| " " | | | 66 | 54 | 7 | F | - | 932 | - | | | | | | | |
| <i>L. siliquoides</i> | 2 | 0 | 90 | 48 | 11 | F? | | LSW2 | | Tissue sample taken | | | | | | |
| | | | 99 | 49 | 15 | F? | | LSW3 | | " " | | | | | | |
| <i>T. pumilus</i> | 0 | 1 | | | | | | | | | | | | | | |
| <i>L. lat. latus</i> | 0 | 1 | | | | | | | | | | | | | | |
| <i>L. quadratus</i> | 1 | 0 | | | | | | | | | | | | | | |
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APPENDIX 2.

PHOTOS OF MUSSELS COLLECTED AT PRAIRIE DU SAC DURING 2002.





L. albigensis, WI. R. Prairie du Sac, Twp. 3.00N. 1 April 2003. M. 35.



